

EAST Search History

Ref #	Hits	Search Query	DBs	Default Operator	Plurals	Time Stamp
L1	444	(548/453).CCLS.	USPAT; DERWENT	OR	OFF	2007/08/31 08:44
S1	2	("5808094").PN.	USPAT; DERWENT	OR	OFF	2007/08/31 08:44

31/08/2007,10561393a.trn

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PASSWORD:

TERMINAL (ENTER 1, 2, 3, OR ?):2

* * * * * Welcome to STN International * * * * *

NEWS 1 Web Page for STN Seminar Schedule - N. America
NEWS 2 MAY 01 New CAS web site launched
NEWS 3 MAY 08 CA/CAPplus Indian patent publication number format defined
NEWS 4 MAY 14 RDISCLOSURE on STN Easy enhanced with new search and display fields
NEWS 5 MAY 21 BIOSIS reloaded and enhanced with archival data
NEWS 6 MAY 21 TOXCENTER enhanced with BIOSIS reload
NEWS 7 MAY 21 CA/CAPplus enhanced with additional kind codes for German patents
NEWS 8 MAY 22 CA/CAPplus enhanced with IPC reclassification in Japanese patents
NEWS 9 JUN 27 CA/CAPplus enhanced with pre-1967 CAS Registry Numbers
NEWS 10 JUN 29 STN Viewer now available
NEWS 11 JUN 29 STN Express, Version 8.2, now available
NEWS 12 JUL 02 LEMBASE coverage updated
NEWS 13 JUL 02 LMEDLINE coverage updated
NEWS 14 JUL 02 SCISEARCH enhanced with complete author names
NEWS 15 JUL 02 CHEMCATS accession numbers revised
NEWS 16 JUL 02 CA/CAPplus enhanced with utility model patents from China
NEWS 17 JUL 16 CAPplus enhanced with French and German abstracts
NEWS 18 JUL 18 CA/CAPplus patent coverage enhanced
NEWS 19 JUL 26 USPATFULL/USPAT2 enhanced with IPC reclassification
NEWS 20 JUL 30 USGENE now available on STN
NEWS 21 AUG 06 CAS REGISTRY enhanced with new experimental property tags
NEWS 22 AUG 06 BEILSTEIN updated with new compounds
NEWS 23 AUG 06 FSTA enhanced with new thesaurus edition
NEWS 24 AUG 13 CA/CAPplus enhanced with additional kind codes for granted patents
NEWS 25 AUG 20 CA/CAPplus enhanced with CAS indexing in pre-1907 records
NEWS 26 AUG 27 Full-text patent databases enhanced with predefined patent family display formats from INPADOCDB
NEWS 27 AUG 27 USPATOLD now available on STN
NEWS 28 AUG 28 CAS REGISTRY enhanced with additional experimental spectral property data

NEWS EXPRESS 29 JUNE 2007: CURRENT WINDOWS VERSION IS V8.2,
CURRENT MACINTOSH VERSION IS V6.0c(ENG) AND V6.0Jc(JP),
AND CURRENT DISCOVER FILE IS DATED 05 JULY 2007.

NEWS HOURS STN Operating Hours Plus Help Desk Availability
NEWS LOGIN Welcome Banner and News Items
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31/08/2007,10561393a.trn

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* * * * * STN Columbus * * * * *

FILE 'HOME' ENTERED AT 07:22:13 ON 31 AUG 2007

=> file reg

COST IN U.S. DOLLARS

SINCE FILE

TOTAL

ENTRY

SESSION

FULL ESTIMATED COST

0.21

0.21

FILE 'REGISTRY' ENTERED AT 07:22:34 ON 31 AUG 2007

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Property values tagged with IC are from the ZIC/VINITI data file provided by InfoChem.

STRUCTURE FILE UPDATES: 30 AUG 2007 HIGHEST RN 945894-95-1

DICTIONARY FILE UPDATES: 30 AUG 2007 HIGHEST RN 945894-95-1

New CAS Information Use Policies, enter HELP USAGETERMS for details.

TSCA INFORMATION NOW CURRENT THROUGH June 29, 2007

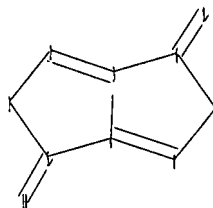
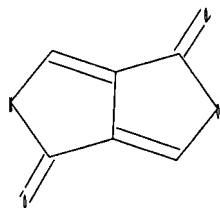
Please note that search-term pricing does apply when conducting SmartSELECT searches.

REGISTRY includes numerically searchable data for experimental and predicted properties as well as tags indicating availability of experimental property data in the original document. For information on property searching in REGISTRY, refer to:

<http://www.cas.org/support/stngen/stndoc/properties.html>

=>

Uploading C:\Program Files\Stnexp\Queries\10561393a.str



chain nodes :

9 10

ring nodes :

1 2 3 4 5 6 7 8

chain bonds :

5-10 6-9

ring bonds :

31/08/2007,10561393a.trn

1-2 1-5 2-3 3-4 3-6 4-5 4-8 6-7 7-8
exact/norm bonds :
1-2 1-5 2-3 3-4 3-6 4-5 4-8 5-10 6-7 6-9 7-8

Match level :

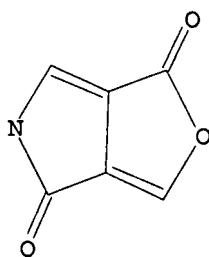
1:Atom 2:Atom 3:Atom 4:Atom 5:Atom 6:Atom 7:Atom 8:Atom 9:CLASS 10:CLASS

L1 STRUCTURE UPLOADED

=> d l1

L1 HAS NO ANSWERS

L1 STR



Structure attributes must be viewed using STN Express query preparation.

=> s l1

SAMPLE SEARCH INITIATED 07:22:51 FILE 'REGISTRY'

SAMPLE SCREEN SEARCH COMPLETED - 136 TO ITERATE

100.0% PROCESSED 136 ITERATIONS 0 ANSWERS
SEARCH TIME: 00.00.01

FULL FILE PROJECTIONS: ONLINE **COMPLETE**
BATCH **COMPLETE**
PROJECTED ITERATIONS: 2021 TO 3419
PROJECTED ANSWERS: 0 TO 0

L2 0 SEA SSS SAM L1

=> s l1 full

FULL SEARCH INITIATED 07:22:55 FILE 'REGISTRY'

FULL SCREEN SEARCH COMPLETED - 2343 TO ITERATE

100.0% PROCESSED 2343 ITERATIONS 28 ANSWERS
SEARCH TIME: 00.00.01

L3 28 SEA SSS FUL L1

=> file hcaplus

COST IN U.S. DOLLARS

SINCE FILE	TOTAL
ENTRY	SESSION
172.10	172.31

FULL ESTIMATED COST

FILE 'HCAPLUS' ENTERED AT 07:23:00 ON 31 AUG 2007

31/08/2007,10561393a.trn

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FILE COVERS 1907 - 31 Aug 2007 VOL 147 ISS 11
FILE LAST UPDATED: 30 Aug 2007 (20070830/ED)

New CAS Information Use Policies, enter HELP USAGETERMS for details.

This file contains CAS Registry Numbers for easy and accurate substance identification.

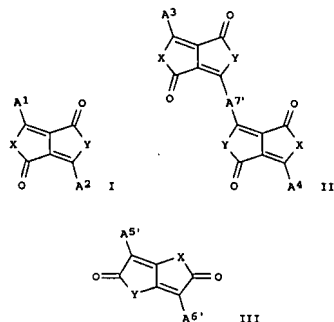
=> s l3

L4 8 L3

=> d ed abs ibib hitstr tot

31/08/2007,10561393a.trn

L4 ANSWER 1 OF 8 HCAPLUS COPYRIGHT 2007 ACS on STN (Continued)
ED Entered STN: 11 Jan 2007
OI

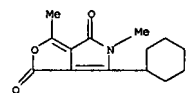


AB The present invention relates to fluorescent compds. of formulas (I), (II), or (III), a process for their preparation and their use for the preparation of inks, colorants, pigmented plastics for coatings, non-impact-printing material, color12 filters, cosmetics, polymeric ink particles, toners, as fluorescent tracers, in color changing media, dye lasers and electroluminescent devices. A luminescent device comprising a compound according to the present invention is high in the efficiency of elec. energy utilization and high in luminance.

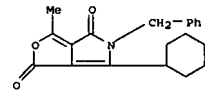
ACCESSION NUMBER: 2007:131334 HCAPLUS
DOCUMENT NUMBER: 146:131334
TITLE: Fluorescent diketopyrrolopyrroles and ct derivatives
INVENTOR(S): Oka, Hidetaka; Yamamoto, Hiroshi; Tanabe, Junichi
PATENT ASSIGNER(S): Ciba Specialty Chemicals Holding Inc., Switz.
SOURCE: PCT Int. Appl., 69pp.
CODEN: PIXXD2
DOCUMENT TYPE: Patent
LANGUAGE: English
FAMILY ACC. NUM. COUNT: 1
PATENT INFORMATION:

PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
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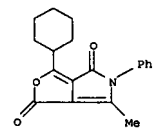
L4 ANSWER 1 OF 8 HCAPLUS COPYRIGHT 2007 ACS on STN (Continued)
CN 1H-Puro[3,4-c]pyrrole-1,4(5H)-dione, 6-cyclohexyl-3,5-dimethyl- (CA INDEX NAME)



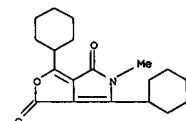
RN 918413-15-7 HCAPLUS
CN 1H-Puro[3,4-c]pyrrole-1,4(5H)-dione, 6-cyclohexyl-3-methyl-5-phenylmethyl- (CA INDEX NAME)



RN 918413-16-8 HCAPLUS
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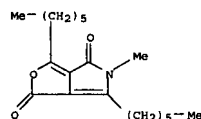
RN 918413-17-9 HCAPLUS
CN 1H-Puro[3,4-c]pyrrole-1,4(5H)-dione, 3,6-dicyclohexyl-5-methyl- (CA INDEX NAME)



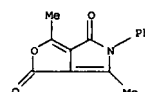
L4 ANSWER 1 OF 8 HCAPLUS COPYRIGHT 2007 ACS on STN (Continued)
WO 2007003520 A1 20070111 WO 2006-EP63527 20060626
W: AB, AG, AL, AM, AT, AU, AZ, BA, BB, BG, BR, BW, BY, BZ, CA, CH, CN, CO, CR, CU, CZ, DE, DK, DM, DZ, EC, EE, EG, ES, FI, GB, GD, GE, GH, GM, HN, HR, HU, ID, IL, IN, IS, JP, KE, KG, KM, KN, KP, KR, KZ, LA, LC, LK, LR, LS, LT, LU, LV, LY, MA, MD, MG, MK, MN, MM, MX, MY, NA, NG, NI, NO, NZ, OM, PA, PH, PL, PT, RO, RS, RU, SC, SD, SE, SG, SK, SL, SM, SY, TJ, TM, TN, TR, TT, TZ, UA, UG, US, UZ, VC, VN, ZA, ZM, ZW
RW: AT, BE, BG, CH, CY, CZ, DE, DK, EE, ES, FI, FR, GB, GR, HU, IS, IT, LT, LU, LV, MC, NL, PL, PT, RO, SE, SI, SK, TR, BF, BJ, CF, CG, CI, CM, GA, GN, GQ, GW, ML, MR, NE, SN, TD, TG, BW, GH, GM, KE, LS, MM, MZ, NA, SD, SL, SZ, TZ, UG, ZM, ZW, AM, AZ, BY, KG, KZ, MD, RU, TJ, TM

PRIORITY APPLN. INPO.: EP 2005-106066 A 20050705

OTHER SOURCE(S): MARPAT 146:131334
IT 918413-12-4 918413-13-5 918413-14-6
918413-15-7 918413-16-8 918413-17-9
918413-18-0 918413-19-1 918413-20-4
918413-21-5 918413-22-6 918413-23-7
918413-24-8 918413-25-9 918413-26-0
918413-27-1 918413-44-2
RL: PRP (Properties); TEM (Technical or engineered material use); USBS (Uses)
(fluorescent diketopyrrolopyrroles and derivs.)
RN 918413-12-4 HCAPLUS
CN 1H-Puro[3,4-c]pyrrole-1,4(5H)-dione, 3,6-dihexyl-5-methyl- (CA INDEX NAME)

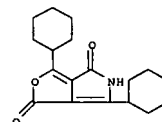


RN 918413-13-5 HCAPLUS
CN 1H-Puro[3,4-c]pyrrole-1,4(5H)-dione, 3,6-dimethyl-5-phenyl- (CA INDEX NAME)

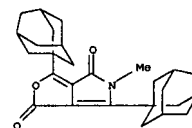


RN 918413-14-6 HCAPLUS

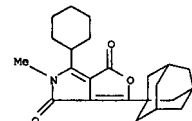
L4 ANSWER 1 OF 8 HCAPLUS COPYRIGHT 2007 ACS on STN (Continued)
RN 918413-18-0 HCAPLUS
CN 1H-Puro[3,4-c]pyrrole-1,4(5H)-dione, 3,6-dicyclohexyl- (CA INDEX NAME)



RN 918413-19-1 HCAPLUS
CN 1H-Puro[3,4-c]pyrrole-1,4(5H)-dione, 5-methyl-3,6-bis(tricyclo[3.3.1.1.3,7]dec-1-yl)- (CA INDEX NAME)



RN 918413-20-4 HCAPLUS
CN 1H-Puro[3,4-c]pyrrole-1,4(5H)-dione, 6-cyclohexyl-5-methyl-3-tricyclo[3.3.1.1.3,7]dec-1-yl- (CA INDEX NAME)

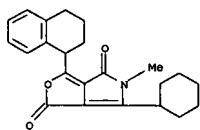


RN 918413-21-5 HCAPLUS
CN 1H-Puro[3,4-c]pyrrole-1,4(5H)-dione, 6-cyclohexyl-5-methyl-3-(1,2,3,4-tetrahydro-1-naphthalenyl)- (CA INDEX NAME)

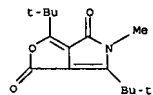


31/08/2007,10561393a.trn

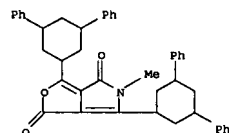
L4 ANSWER 1 OF 8 HCAPLUS COPYRIGHT 2007 ACS on STN (Continued)



RN 918413-22-6 HCAPLUS
CN 1H-Puro[3,4-c]pyrrole-1,4(5H)-dione, 3,6-bis(1,1-dimethylethyl)-5-methyl- (CA INDEX NAME)

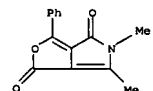


RN 918413-23-7 HCAPLUS
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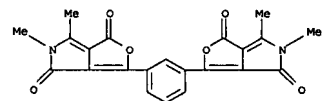


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L4 ANSWER 1 OF 8 HCAPLUS COPYRIGHT 2007 ACS on STN (Continued)

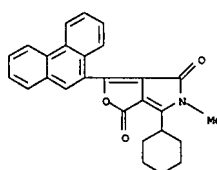


RN 918413-44-2 HCAPLUS
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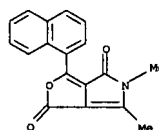


REFERENCE COUNT: 3 THERE ARE 3 CITED REFERENCES AVAILABLE FOR THIS RECORD. ALL CITATIONS AVAILABLE IN THE RE
FORMAT

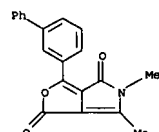
L4 ANSWER 1 OF 8 HCAPLUS COPYRIGHT 2007 ACS on STN (Continued)



RN 918413-25-9 HCAPLUS
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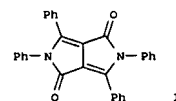


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RN 918413-27-1 HCAPLUS
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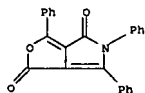
L4 ANSWER 2 OF 8 HCAPLUS COPYRIGHT 2007 ACS on STN
ED Entered STN: 01 Nov 2005
OI



AB Synthetic methodologies leading toward 2,3,5-triaryl- and 2,3,5,6-tetraaryl-2,5-dihydropyrrolo[3,4-c]pyrrole-1,4-diones (tri- and tetra-aryl-DPPs), e.g., I, and their deriva. have been investigated. Direct arylation of 3,6-diphenyl-DPP was possible using 1-fluoro-2,4-dinitrobenzene. Acylation of St 2-aryl-4,5-dihydro-5-oxopyrrole-3-carboxylates with N-aryl benzimidoyl chlorides in the presence of a strong base gave the 2,3,6-triaryl-DPPs together with the corresponding uncyclized enamines. A simple method for the synthesis of Et 1,2-diaryl-4,5-dihydro-5-oxopyrrole-3-carboxylates has led to an alternative route to triaryl-DPPs via reaction with benzonitrile under basic conditions, and combination of this with the benzimidoyl chloride methodol. has enabled the synthesis of variously substituted 2,3,5,6-tetraaryl-DPPs.

ACCESSION NUMBER: 2005:1163985 HCAPLUS
DOCUMENT NUMBER: 144:69755
TITLE: Synthetic studies related to diketopyrrolopyrrole (DPP) pigments. Part 3: Syntheses of tri- and tetra-aryl DPPs
AUTHOR(S): Riggs, Richard L.; Morton, Colin J. H.; Slawin, Alexandra M. Z.; Smith, David M.; Westwood, Nicholas J.; Austen, William S. D.; Stuart, Katie E.
CORPORATE SOURCE: University of St. Andrews, School of Chemistry, St. Andrews, KY16 9ST, UK
SOURCE: Tetrahedron (2005), 61(47), 11230-11243
CODEN: TETRAH; ISSN: 0040-4020
PUBLISHER: Elsevier B.V.
DOCUMENT TYPE: Journal
LANGUAGE: English
OTHER SOURCE(S): CASREACT 144:69755
IT 128318-56-9P
RL: RCT (Reactant); SPN (Synthetic preparation); PREP (Preparation); RACT (Reactant or reagent)
(preparation and fluorescence of tetraarylprrrolopyrroledione via condensation of diphenylpyrrolinonecarboxylate with benzoyl chloride followed by cyclization and amidation with anilines)
RN 128318-56-9 HCAPLUS
CN 1H-Puro[3,4-c]pyrrole-1,4(5H)-dione, 3,5,6-triphenyl- (9CI) (CA INDEX NAME)

L4 ANSWER 2 OF 8 HCAPLUS COPYRIGHT 2007 ACS on STN (Continued)



REFERENCE COUNT: 27 THERE ARE 27 CITED REFERENCES AVAILABLE FOR
THIS RECORD. ALL CITATIONS AVAILABLE IN THE RE
FORMAT

L4 ANSWER 3 OF 8 HCAPLUS COPYRIGHT 2007 ACS on STN (Continued)
omitted in the microwave-assisted ring closure, which makes the process
even more cost-effective. For instance, 0.296 mmol IV was irradiated
with
microwave radiation at 2.45 GHz and forward power 300 W without solvent,
heating to 250° for 10 min. The crude product V was allowed to
cool, triturated, filtered, and washed with MeOH (86% yield). The DPP
compd. VI was prepd. in 52% yield by condensation of the corresponding
lactone (i.e., an analog of VI) with PhNH₂ in the presence of CF₃CO₂H and
DCC at room temp. Finally, 5-oxo-4,5-dihydrofuran-3-carboxylates react
with primary amines to give corresponding pyrrole derivs., which then
react with nitriles A2-CN to give compds. III [A4 = H].
ACCESSION NUMBER: 2005:58206 HCAPLUS
DOCUMENT NUMBER: 142:155935
TITLE: Processes for the preparation of furopyrrroles and
diketopyrrrolopyrroles (DPPs) via microwave-assisted
cyclocondensations of acylpyrrolecarboxylate
derivatives, intramolecularly or with nitriles
Riggs, Richard Lewis; Westwood, Nicholas James;
INVENTOR(S): David MacDonald; Morton, Colin
Smith, Ciba Specialty Chemicals Holding Inc., Switz.
PATENT ASSIGNEE(S):
SOURCE: PCT Int. Appl., 33 pp.
CODEN: PIXXD2
DOCUMENT TYPE: Patent
LANGUAGE: English
FAMILY ACC. NUM. COUNT: 1
PATENT INFORMATION:

PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
WO 2005005430	A2	20050120	WO 2004-EP51259	20040628
WO 2005005430	A3	20050616		
W:	AE, AG, AL, AM, AT, AU, AZ, BA, BB, BG, BR, BW, BY, BZ, CA, CH, CN, CO, CR, CU, CZ, DE, DK, DM, DZ, EC, EE, EG, ES, FI, GB, GD, GE, GH, GM, GR, HU, ID, IL, IN, IS, JP, KE, KG, KP, KR, KZ, LC, LK, LR, LS, LT, LU, LV, MA, MD, MG, MK, MN, MW, MX, MZ, NA, NI, NO, NZ, OM, PG, PH, PL, PT, RO, RU, SC, SD, SE, SG, SK, SL, SY, TJ, TM, TN, TR, TT, TZ, UA, UG, US, UZ, VC, VN, YU, ZA, ZM, ZW			
RW:	BW, GH, GM, KE, LS, MW, MZ, NA, SD, SL, SZ, TZ, UG, ZM, ZW, AM, AZ, BY, KG, KZ, MD, RU, TJ, TM, AT, BE, BG, CH, CY, CZ, DE, DK, EE, ES, FI, FR, GB, GR, HU, IE, IT, LU, MC, NL, PL, PT, RO, SE, SI, SK, TR, BF, BJ, CF, CG, CI, CM, GA, GN, GQ, GW, ML, MR, NE, SN, TD, TO			
AU 2004255863	A1	20050120	AU 2004-255863	20040628
EP 1641802	A2	20050405	EP 2004-766084	20040628
R:	AT, BE, CH, DE, DK, ES, FR, GB, GR, IT, LI, LU, NL, SE, MC, PT, IS, SI, FI, RO, CY, TR, BG, CZ, EE, HU, PL, SK			
CN 1816553	A	20060809	CN 2004-80019155	20040628
US 2007100135	A1	20070503	US 2005-561393	20051219
IN 2006CN0451	A	20070817	IN 2006-CN451	20060203
PRIORITY APPLN. INFO.:			BP 2003-405507	A 20030707
			WO 2004-EP51259	W 20040628

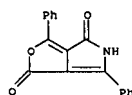
OTHER SOURCE(S): CASREACT 142:155935; MARPAT 142:155935
IT 502183-99-5P, 3,6-Diphenylfuro[3,4-c]pyrrole-1,4-dione
RL: IMF (Industrial manufacture); SPN (Synthetic preparation); PREP
(Preparation)
..... (final compound; preparation of furopyrrroles and

Young, Shawquia, Page 7

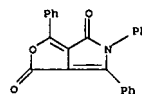
L4 ANSWER 3 OF 8 HCAPLUS COPYRIGHT 2007 ACS on STN
ED Entered STN: 21 Jan 2005
GI

* STRUCTURE DIAGRAM TOO LARGE FOR DISPLAY - AVAILABLE VIA OFFLINE PRINT *

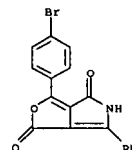
AB The invention relates to a process for the preparation of furopyrrroles I, comprising (a) heating a compound II under microwave irradiation, optionally in the presence of an inert solvent [wherein A1 and A2 are C1-C18 alkyl, C2-C18 alkenyl, C2-C18 alkynyl, C5-C8 cycloalkyl, C5-C8 cycloalkenyl, aryl, or heteroaryl; A3 is H, C1-C18 alkyl, cyanomethyl, Ar3, -CH₂OR₃₁, (CH₂)_m-Ar₃, or -Y-R₃₂, wherein R₃₀ and R₃₁ independently stand for H or C1-C4 alkyl, or Ph which can be substituted up to three times with C1-C4 alkyl; Ar₃ is aryl, C5-C8 cycloalkyl, C5-C8 cycloalkenyl, or heteroaryl, which can be substituted one to three times with C1-C8 alkyl, C1-C8 alkoxy, halogen, or Ph, which can be substituted with C1-C8 alkyl or C1-C8 alkoxy 1-3 times; m is 0, 1, 2, 3, or 4; R is C1-C18 alkyl, in particular C1-C4 alkyl, aryl, in particular Ph, or aralkyl, in particular benzyl, which can be substituted one to three times with C1-C8 alkyl, C1-C8 alkoxy, or halogen; Y is C(O), C(O)O, C(O)NH, SO₂NH, or SO₂; and R₃₂ is C1-C18 alkyl, Ar₃, or aralkyl]. Claims also cover diketopyrrrolopyrroles (DPPs) III [A4 = H], the preparation of III [A4 = C1-C18 alkyl or Ar₃] by reaction of I with primary amines A4-NH₂ and an addnl. preparation of III [A4 = H]. I can be obtained in high yield and high purity. The microwave-assisted process, optionally in the presence of an inert solvent, is rapid and economical. Previously, WO03022848 disclosed a process for the preparation of I, comprising heating a compound II in an inert solvent, such as aromatic solvents, like biphenyl, para-, meta- or ortho-terphenyl, dibenzyltoluene, α-methyl- or β-methylnaphthalene, cyclic carbonates like 1,3-dioxolan-2-one, ketones like acetophenone or benzophenone, γ-butyrolactone, and ethylene glycols like Phe-Cellosolve or Bu-Cellosolve, or mixts. thereof, in particular mixts. of di- and triaryl ethers (Dowtherm A). It was discovered that I can be obtained in higher yield by carrying out the above reaction under microwave radiation. The yield of the desired ring closure reaction, e.g., of Et 4-benzoyl-4,5-dihydro-5-oxo-2-phenylpyrrole-3-carboxylate (IV) to give 3,6-diphenylfuro[3,4-c]pyrrole-1,4-dione (V), is, for example, increased from 40% to 86% by microwave assistance. Moreover, the preparation of the latter lactone (a versatile DPP precursor) requires less time (1-10 min) under microwave irradiation, whereas it takes 60 h when conducted without microwave radiation (conventional method). In addition, the solvent can be



IT 128318-56-9P, 3,5,6-Triphenyl-1H-furo[3,4-c]pyrrole-1,4(5H)-dione 827606-77-9P, 3-(p-Bromophenyl)-6-phenylfuro[3,4-c]pyrrole-1,4-dione 827606-79-1P, 5-Methyl-3-(p-bromophenyl)-6-phenylfuro[3,4-c]pyrrole-1,4-dione 827606-85-9P, 3-(p-Nitrophenyl)-6-phenylfuro[3,4-c]pyrrole-1,4-dione 827606-87-1P, 5-Methyl-3-(p-nitrophenyl)-6-phenylfuro[3,4-c]pyrrole-1,4-dione RL: IMF (Industrial manufacture); RCT (Reactant); SPN (Synthetic preparation); PREP (Preparation); RACT (Reactant or reagent) (intermediate; preparation of furopyrrroles and diketopyrrrolopyrroles (DPPs) via microwave-assisted cyclocondensations of acylpyrrolecarboxylate derivs.)
RN 128318-56-9 HCAPLUS
CN 1H-Furo[3,4-c]pyrrole-1,4(5H)-dione, 3,5,6-triphenyl- (9CI) (CA INDEX NAME)

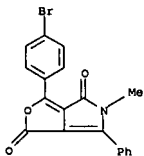


RN 827606-77-9 HCAPLUS
CN 1H-Furo[3,4-c]pyrrole-1,4(5H)-dione, 3-(4-bromophenyl)-6-phenyl- (9CI) (CA INDEX NAME)

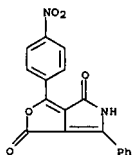


31/08/2007,10561393a.trn

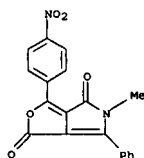
L4 ANSWER 3 OF 8 HCAPLUS COPYRIGHT 2007 ACS on STN (Continued)
RN 827606-79-1 HCAPLUS
CN 1H-Puro[3,4-c]pyrrole-1,4(5H)-dione, 3-(4-bromophenyl)-5-methyl-6-phenyl-
(9CI) (CA INDEX NAME)



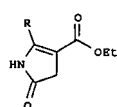
RN 827606-85-9 HCAPLUS
CN 1H-Puro[3,4-c]pyrrole-1,4(5H)-dione, 3-(4-nitrophenyl)-6-phenyl- (9CI)
(CA INDEX NAME)



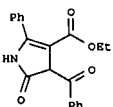
RN 827606-87-1 HCAPLUS
CN 1H-Puro[3,4-c]pyrrole-1,4(5H)-dione, 5-methyl-3-(4-nitrophenyl)-6-phenyl-
(9CI) (CA INDEX NAME)



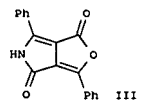
L4 ANSWER 4 OF 8 HCAPLUS COPYRIGHT 2007 ACS on STN
ED Entered STN: 14 Dec 2004
GI



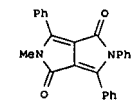
I



II



III



IV

AB Et 2-aryl-4,5-dihydro-5-oxopyrrole-3-carboxylates, I (R = Ph, 4-ClC6H4)
react with esters or acyl halides in the presence of a strong base to
give

4-acyl derivs., e.g. II, which exist predominantly as either E- or
Z-enols. These are cyclized, either in solution at temps. >200°C or
by microwave irradiation, to 3,6-disubstituted
1H-furo[3,4-c]pyrrolediones.

e.g. III, which, after N-protection, are convertible by reaction with
primary amines into novel N,N'-disubstituted DPP derivs., e.g. IV.

ACCESSION NUMBER: 2004:1068649 HCAPLUS

DOCUMENT NUMBER: 142:197924

TITLE: Synthetic studies related to diketopyrrolopyrrole
(DPP) pigments. Part 2: The use of esters in place of
nitriles in standard DPP syntheses: Claisen-type
acylations and furopyrrole intermediates

AUTHOR(S): Morton, Colin J. H.; Riggs, Richard L.; Smith, David
M.; Westwood, Nicholas J.; Lightfoot, Philip; Slawin,
Alexandra M. Z.

CORPORATE SOURCE: School of Chemistry, University of St. Andrews, Fife,
KY16 9ST, UK

SOURCE: Tetrahedron (2005), 61(3), 727-738

CODEN: TETRA8; ISSN: 0040-4020

PUBLISHER: Elsevier B.V.

DOCUMENT TYPE: Journal

LANGUAGE: English

OTHER SOURCE(S): CASREACT 142:197924

IT 502183-99-5P 502423-27-0P 502423-30-5P

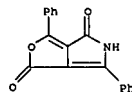
827606-77-9P 827606-79-1P 827606-85-9P

827606-87-1P

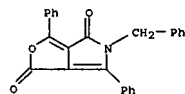
RL: RCT (Reactant); SPN (Synthetic preparation); PREP (Preparation); RACT
(Reactant or reagent)
(synthesis of diarylpyrrolopyrrolediones via Claisen-type acylations

L4 ANSWER 3 OF 8 HCAPLUS COPYRIGHT 2007 ACS on STN (Continued)

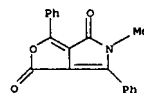
L4 ANSWER 4 OF 8 HCAPLUS COPYRIGHT 2007 ACS on STN (Continued)
using esters)
RN 502183-99-5 HCAPLUS
CN 1H-Puro[3,4-c]pyrrole-1,4(5H)-dione, 3,6-diphenyl- (9CI) (CA INDEX NAME)



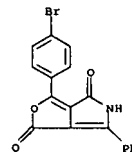
RN 502423-27-0 HCAPLUS
CN 1H-Puro[3,4-c]pyrrole-1,4(5H)-dione, 3,6-diphenyl-5-(phenylmethyl)- (9CI)
(CA INDEX NAME)



RN 502423-30-5 HCAPLUS
CN 1H-Puro[3,4-c]pyrrole-1,4(5H)-dione, 5-methyl-3,6-diphenyl- (9CI) (CA
INDEX NAME)



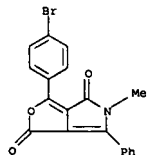
RN 827606-77-9 HCAPLUS
CN 1H-Puro[3,4-c]pyrrole-1,4(5H)-dione, 3-(4-bromophenyl)-6-phenyl- (9CI)
(CA INDEX NAME)



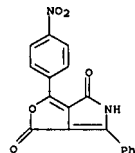
31/08/2007,10561393a.trn

L4 ANSWER 4 OF 8 HCAPLUS COPYRIGHT 2007 ACS on STN (Continued)

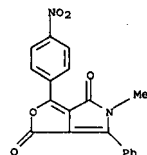
RN 827606-79-1 HCAPLUS
CN 1H-Puro[3,4-c]pyrrole-1,4(5H)-dione, 3-(4-bromophenyl)-5-methyl-6-phenyl- (9CI) (CA INDEX NAME)



RN 827606-85-9 HCAPLUS
CN 1H-Puro[3,4-c]pyrrole-1,4(5H)-dione, 3-(4-nitrophenyl)-6-phenyl- (9CI) (CA INDEX NAME)



RN 827606-87-1 HCAPLUS
CN 1H-Puro[3,4-c]pyrrole-1,4(5H)-dione, 5-methyl-3-(4-nitrophenyl)-6-phenyl- (9CI) (CA INDEX NAME)



L4 ANSWER 5 OF 8 HCAPLUS COPYRIGHT 2007 ACS on STN
SD Entered STN: 21 Mar 2003
GI



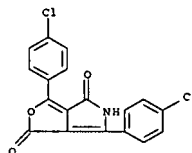
AB Title compds. [I; A1, A2 = alkyl, alkenyl, alkynyl, cycloalkyl, cycloalkenyl, aryl, heteroaryl; A3 = H, alkyl, cyanomethyl, Ar3, CR3OR31(CH2)mAr3, YR32; R30, R31 = H, alkyl, (substituted) Ph; Ar3 = (substituted) aryl, cycloalkyl, cycloalkenyl, heteroaryl; Y = CO, CONH, SO2NH, SO2; R32 = alkyl, Ar3, aralkyl; A4 = alkyl, Ar3], were prepared by treatment of furopyrrrolediones (II; variables as above) with A4NH2 (A4 as above). Thus, II (A1, A2 = Ph; A3 = CH2Ph) was stirred with DCC, PhNH2, and CF3CO2H in CH2Cl2 at 40° to give 16% I (A1, A2, A4 = Ph; A3 = CH2Ph).

ACCESSION NUMBER: 2003:221689 HCAPLUS
DOCUMENT NUMBER: 138:255221
TITLE: Process for the preparation of diketopyrrolopyrroles (DPPs) from furopyrrrolediones and primary amines.
INVENTOR(S): Morton, Colin; Smith, David MacDonald; Ruffieux, Vincent
PATENT ASSIGNEE(S): Ciba Specialty Chemicals Holding Inc., Switz.
SOURCE: PCT Int. Appl., 45 pp.
CODEN: PIXXD2
DOCUMENT TYPE: Patent
LANGUAGE: English
FAMILY ACC. NUM. COUNT: 2
PATENT INFORMATION:

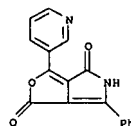
PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
WO 2003022848	A2	20030320	WO 2002-EP9792	20020903
WO 2003022848	A3	20030918		
W:	AE, AG, AL, AM, AT, AU, AZ, BA, BB, BG, BR, BY, BZ, CA, CH, CN, CO, CR, CU, CZ, DE, DK, DM, DZ, EC, EE, ES, FI, GB, GD, GE, GH, GM, HR, HU, ID, IL, IN, IS, JP, KE, KG, KP, KR, KZ, LC, LK, LR, LS, LT, LU, LV, MA, MD, MG, MK, MN, MM, MX, MZ, NO, NZ, OM, PH, PL, PT, RO, RU, SD, SE, SG, SI, SK, SL, TJ, TM, TN, TR, TT, TZ, UA, UG, US, UZ, VC, VN, YU, ZA, ZM, ZW			
RN:	GH, GM, KE, LS, MW, MZ, SD, SL, SZ, TZ, UG, ZM, ZW, AM, AZ, BY, KG, KZ, MD, RU, TJ, TM, AT, BE, BG, CH, CY, CZ, DE, DK, EE, ES, FI, FR, GB, GR, IE, IT, LU, MC, NL, PT, SE, SK, TR, BF, BJ, CF, CG, CI, CM, GA, GN, GQ, GW, ML, MR, NE, SN, TD, TG			
AU 2002342633	A1	20030324	AU 2002-342633	20020903
EP 1425282	A2	20040609	EP 2002-779291	20020903
EP 1425282	B1	20070321		
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CN 1553912	A	20041208	CN 2002-817586	20020903
CN 1553913	A	20041208	CN 2002-817793	20020903
JP 2005508903	T	20050407	JP 2003-526923	20020903

L4 ANSWER 4 OF 8 HCAPLUS COPYRIGHT 2007 ACS on STN (Continued)

IT 502423-29-2P 836624-14-7P
RL: SPN (Synthetic preparation); PREP (Preparation)
(synthesis of diarylpyrrolopyrrolediones via Claisen-type acylations using esters)
RN 502423-29-2 HCAPLUS
CN 1H-Puro[3,4-c]pyrrole-1,4(5H)-dione, 3,6-bis(4-chlorophenyl)- (9CI) (CA INDEX NAME)



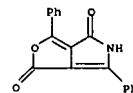
RN 836624-14-7 HCAPLUS
CN 1H-Puro[3,4-c]pyrrole-1,4(5H)-dione, 6-phenyl-3-(3-pyridinyl)- (9CI) (CA INDEX NAME)



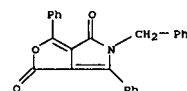
REFERENCE COUNT: 13 THERE ARE 13 CITED REFERENCES AVAILABLE FOR THIS RECORD. ALL CITATIONS AVAILABLE IN THE REFORMAT

L4 ANSWER 5 OF 8 HCAPLUS COPYRIGHT 2007 ACS on STN (Continued)
AT 321049 T 20060415 AT 2002-774550 20020903
AT 357446 T 20070415 AT 2002-779291 20020903
US 2004171847 A1 20040902 US 2004-485840 20040204
ZA 2004001106 A 20041019 ZA 2004-1106 20040211
PRIORITY APPLN. INFO.: EP 2001-810875 A 20010911
BP 2001-811249 A 20011220
BP 2002-405223 A 20020322
WO 2002-EP9792 W 20020903

OTHER SOURCE(S): MARPAT 138:255221
IT 502183-99-5P 502423-27-0P 502423-29-2P
502423-30-5P 502423-31-6P
RL: RCT (Reactant); SPN (Synthetic preparation); PREP (Preparation); RACT (Reactant or reagent)
(process for the preparation of diketopyrrolopyrroles (DPPs) from furopyrrrolediones and primary amines)
RN 502183-99-5 HCAPLUS
CN 1H-Puro[3,4-c]pyrrole-1,4(5H)-dione, 3,6-diphenyl- (9CI) (CA INDEX NAME)

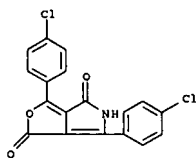


RN 502423-27-0 HCAPLUS
CN 1H-Puro[3,4-c]pyrrole-1,4(5H)-dione, 3,6-diphenyl-5-(phenylmethyl)- (9CI) (CA INDEX NAME)

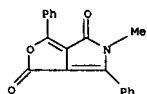


RN 502423-29-2 HCAPLUS
CN 1H-Puro[3,4-c]pyrrole-1,4(5H)-dione, 3,6-bis(4-chlorophenyl)- (9CI) (CA INDEX NAME)

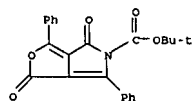
L4 ANSWER 5 OF 8 HCAPLUS COPYRIGHT 2007 ACS on STN (Continued)



RN 502423-30-5 HCAPLUS
CN 1H-Puro[3,4-c]pyrrole-1,4(5H)-dione, 5-methyl-3,6-diphenyl- (9CI) (CA INDEX NAME)



RN 502423-31-6 HCAPLUS
CN 1H-Puro[3,4-c]pyrrole-1,4(5H)-carboxylic acid, 1,4-dioxo-3,6-diphenyl-, 1,1-dimethylethyl ester (9CI) (CA INDEX NAME)



L4 ANSWER 6 OF 8 HCAPLUS COPYRIGHT 2007 ACS on STN (Continued)

GM, HR, HU, ID, IL, IN, IS, JP, KE, KG, KP, KR, KZ, LC, LK, LR, LS, LT, LU, LV, MA, MD, MG, MK, MN, MW, MX, MZ, NO, NZ, OM, PH, PL, PT, RO, RU, SD, SE, SG, SI, SK, SL, TJ, TM, TN, TR, TT, TZ, UA, UG, US, UZ, VC, VN, YU, ZA, ZM, ZW
RW: GH, GM, KE, LS, MW, MZ, SD, SL, SZ, TZ, UG, ZM, AM, AZ, BY, KG, KZ, MD, RU, TJ, TM, AT, BE, BG, CH, CY, CZ, DE, DK, EE, ES, FI, FR, GB, GR, IE, IT, LU, MC, NL, PT, SE, SK, TR, BF, BJ, CF, CG, CI, CM, GA, GN, GQ, GW, ML, MR, NE, SN, TD, TG
CA 2457710 A1 20030320 CA 2002-2457710 20020903
AU 2002340851 A1 20030324 AU 2002-340851 20020903
EP 1436296 A2 20040714 EP 2002-774550 20020903
EP 1436296 B1 20060322
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CN 1553912 A 20041208 CN 2002-817586 20020903
CN 1553913 A 20041208 CN 2002-817793 20020903
JP 2005512960 T 20050512 JP 2003-526922 20020903
AT 321049 T 20060415 AT 2002-774550 20020903
AT 357446 T 20070415 AT 2002-779291 20020903
ZA 2004001106 A 20041019 ZA 2004-1106 20040211
US 2004249162 A1 20041209 US 2004-489037 20040305
US 7186847 B2 20070306
MX 2004PA02334 A 20040629 MX 2004-PA2334 20040311
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US 2007117889 A1 20070524 US 2007-654154 20070117
EP 2001-810875 A 20010911
EP 2001-811249 A 20011220
EP 2002-405223 A 20020322
WO 2002-EP9791 W 20020903
US 2004-489037 A3 20040305

OTHER SOURCE(S): CASREACT 138:238162; MARPAT 138:238162

IT 502183-99-5

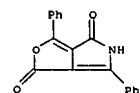
RL: MOA (Modifier or additive use); USES (Uses)

(process for the direct preparation of diketopyrrolopyrroles (DPPs)

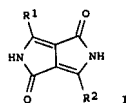
from disuccinates and aromatic nitriles)

RN 502183-99-5 HCAPLUS

CN 1H-Puro[3,4-c]pyrrole-1,4(5H)-dione, 3,6-diphenyl- (9CI) (CA INDEX NAME)



L4 ANSWER 6 OF 8 HCAPLUS COPYRIGHT 2007 ACS on STN
ED Entered STN: 21 Mar 2003
GI



AB Title compds. [I; R1, R2 = (substituted) (heterocyclic) aryl], were prepared

by (a) heating a disuccinate with R1CN or R2CN or a mixture thereof in an organic solvent in the presence of a particle growth regulator, (b) conditioning the intermediate condensation product in H2O or a mixture of H2O and a H2O-miscellaneous solvent, optionally in the presence of an inorg. acid,

and (c) optionally conditioning the product of step (b) in an aprotic solvent. The obtained DPPs possess a higher color strength, a higher chroma, a purer shade and a higher opacity vs. corresponding com. available DPPs. Thus, a mixture of Na in tert-amyl alc. was heated to 130° followed by addition of FeCl3, 4-chlorobenzonitrile, 4-isopropoxybenzonitrile (preparation given), diisopropyl succinate, and tert-amyl alc. over 2 h. The temperature was decreased to 85°, stirred 2 h, cooled to 40°, and transferred over 30 min. to a mixture of H2O and MeOH. The mixture was refluxed 18 h to give 75% C.I. pigment red 254,

which was further conditioned by heating in Dowtherm E for 5 h at 160° to give a red pigment with a purer, brighter, yellower shade and a slightly higher opacity.

ACCESSION NUMBER: 2001:221688 HCAPLUS

DOCUMENT NUMBER: 138:238162

TITLE: Process for the direct preparation of diketopyrrolo[3,4-c]pyrroles (DPPs) from disuccinates and aromatic nitriles in the presence of particle growth regulators

INVENTOR(S): Ruffieux, Vincent, Modoux, Florence
PATENT ASSIGNEE(S): Ciba Specialty Chemicals Holding Inc., Switz.
SOURCE: PCT Int. Appl., 32 pp.
CODEN: PIXXD2

DOCUMENT TYPE: Patent

LANGUAGE: English

FAMILY ACC. NUM. COUNT: 2

PATENT INFORMATION:

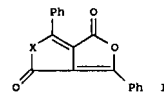
PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
WO 2003022847	A2	20030320	WO 2002-EP9791	20020903
WO 2003022847	A3	20030925		

W: AE, AG, AL, AM, AT, AU, AZ, BA, BB, BG, BR, BY, BZ, CA, CH, CN, CO, CR, CU, CZ, DE, DK, DM, DZ, EC, EE, ES, FI, GB, GD, GE, GH,

L4 ANSWER 7 OF 8 HCAPLUS COPYRIGHT 2007 ACS on STN

RD Entered STN: 18 May 1996

GI



AB Several DPP were prepared by the condensation of the corresponding lactones I (X = O, NPh) with arylamines in the presence of DCC. Bright red pigments were obtained with an intense red to orange solid-state fluorescence.

ACCESSION NUMBER: 1996:296099 HCAPLUS

DOCUMENT NUMBER: 125:35817

TITLE: Highly photostable organic fluorescent pigments - a simple synthesis of N-arylprrrolopyrrolediones (DPP)

AUTHOR(S): Langhals, Heinz; Grundel, Thomas; Potrawa, Thomas; Polborn, Kurt

CORPORATE SOURCE: Institut Organische Chemie, Universitaet Muenchen, Munich, D-80333, Germany

SOURCE: Liebigs Annalen (1996), (5), 679-682

CODEN: LANAEM; ISSN: 0947-3440

PUBLISHER: VCH

DOCUMENT TYPE: Journal

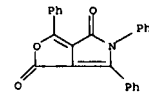
LANGUAGE: English

IT 128318-56-9P
RL: RCT (Reactant); SPN (Synthetic preparation); PREP (Preparation); RACT (Reactant or reagent)

(intermediate; preparation and UV and fluorescence spectra of N-arylprrrolopyrroledione fluorescent pigments)

RN 128318-56-9 HCAPLUS

CN 1H-Puro[3,4-c]pyrrole-1,4(5H)-dione, 3,6-diphenyl- (9CI) (CA INDEX NAME)



31/08/2007,10561393a.trn

L4 ANSWER 8 OF 8 HCAPLUS COPYRIGHT 2007 ACS on STN

ED Entered STN: 17 Aug 1990

AB The dyes with 22 different color forms, one of which can be changed to the other by supplying energy, are described which are used as storage media in optical memories. The dyes are solid state fluorescent dyes.

Thus,

3,6-bis(2'-methoxyphenyl)-2,5-dihydropyrrole(3,4-c)pyrrole-1,4-dione was prepared

ACCESSION NUMBER: 1990:468456 HCAPLUS

DOCUMENT NUMBER: 113:68456

TITLE: Optical memory devices containing color changeable dyes, and dyes therefor

INVENTOR(S): Langhals, Heinz; Potrawa, Thomas

PATENT ASSIGNEE(S): Riedel-de Haen A.-G., Germany

SOURCE: PCT Int. Appl., 96 pp.

CODEN: PIXXD2

DOCUMENT TYPE: Patent

LANGUAGE: German

FAMILY ACC. NUM. COUNT: 1

PATENT INFORMATION:

PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
WO 9001480	A1	19900222	WO 1989-EP866	19890724
W: JP, US				
RW: CH, DE, FR, GB, NL				
DE 3901988	A1	19900201	DE 1989-3901988	19890124
DE 3908312	A1	19900927	DE 1989-3908312	19890314
EP 426717	A1	19910515	EP 1989-908407	19890724
EP 426717	B1	19960424		
R: CH, DE, FR, GB, LI, NL				
JP 04500935	T	19920220	JP 1989-507776	19890724
US 5354869	A	19941011	US 1991-640367	19910129
PRIORITY APPLN. INFO.:			DE 1988-3825943	A 19880729
			DE 1989-3901988	A 19890124
			DE 1989-3908312	A 19890314
			DE 1988-3808312	A 19890314
			WO 1989-EP866	W 19890724

OTHER SOURCE(S): MARPAT 113:68456

IT 128318-56-9P

RL: PREP (Preparation)

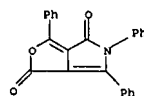
(preparation of, as color changeable dye in optical memory device)

RN 128318-56-9 HCAPLUS

CN 1H-Furo[3,4-c]pyrrole-1,4(5H)-dione, 3,5,6-triphenyl- (9CI) (CA INDEX NAME)

L4 ANSWER 8 OF 8 HCAPLUS COPYRIGHT 2007 ACS on STN

(Continued)



31/08/2007,10561393b.trn

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CA SUBSCRIBER PRICE	-6.24	-6.24

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COST IN U.S. DOLLARS	SINCE FILE ENTRY	TOTAL SESSION
FULL ESTIMATED COST	44.76	217.07
DISCOUNT AMOUNTS (FOR QUALIFYING ACCOUNTS)	SINCE FILE ENTRY	TOTAL SESSION
CA SUBSCRIBER PRICE	-6.24	-6.24

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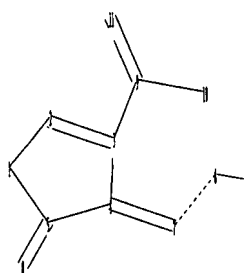
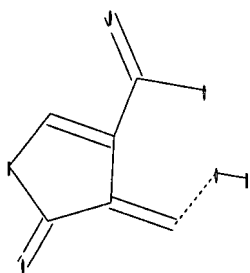
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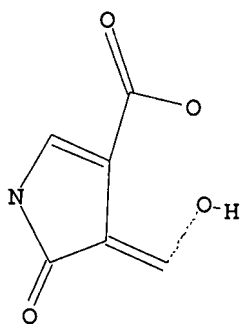


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6 7 8 9 10 11 12
ring nodes :
1 2 3 4 5
chain bonds :
3-9 4-7 5-8 6-7 6-12 9-10 9-11
ring bonds :
1-2 1-5 2-3 3-4 4-5
exact/norm bonds :
1-2 1-5 2-3 3-4 4-5 5-8 6-7 9-10 9-11
exact bonds :
3-9 4-7 6-12

Match level :
1:Atom 2:Atom 3:Atom 4:Atom 5:Atom 6:CLASS 7:CLASS 8:CLASS 9:CLASS
10:CLASS 11:CLASS 12:CLASS

L5 STRUCTURE UPLOADED

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L5 HAS NO ANSWERS
L5 STR



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SAMPLE SCREEN SEARCH COMPLETED - 65 TO ITERATE

31/08/2007,10561393b.trn

100.0% PROCESSED 65 ITERATIONS 0 ANSWERS
SEARCH TIME: 00.00.01

FULL FILE PROJECTIONS: ONLINE **COMPLETE**
BATCH **COMPLETE**
PROJECTED ITERATIONS: 817 TO 1783
PROJECTED ANSWERS: 0 TO 0

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FULL SCREEN SEARCH COMPLETED - 1232 TO ITERATE

100.0% PROCESSED 1232 ITERATIONS 10 ANSWERS
SEARCH TIME: 00.00.01

L7 10 SEA SSS FUL L5

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	ENTRY	SESSION
FULL ESTIMATED COST	172.10	389.17
DISCOUNT AMOUNTS (FOR QUALIFYING ACCOUNTS)	SINCE FILE	TOTAL
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CA SUBSCRIBER PRICE	0.00	-6.24

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FILE LAST UPDATED: 30 Aug 2007 (20070830/ED)

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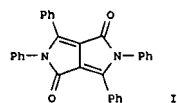
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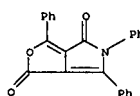
L8 ANSWER 1 OF 4 HCAPLUS COPYRIGHT 2007 ACS on STN
ED Entered STN: 01 Nov 2005
GI



AB Synthetic methodologies leading toward 2,3,5-triaryl- and 2,3,5,6-tetraaryl-2,5-dihydropyrrolo[3,4-c]pyrrole-1,4-diones (tri- and tetra-aryl-DPPs), e.g., I, and their derivs. have been investigated. Direct arylation of 3,6-diphenyl-DPP was possible using 1-fluoro-2,4-dinitrobenzene. Acylation of Et 2-aryl-4,5-dihydro-5-oxopyrrole-3-carboxylates with N-aryl benzimidoyl chlorides in the presence of a strong base gave the 2,3,6-triaryl-DPPs together with the corresponding uncyclized enamines. A simple method for the synthesis of St 1,2-diaryl-4,5-dihydro-5-oxopyrrole-3-carboxylates has led to an alternative route to triaryl-DPPs via reaction with benzoxonitrile under basic conditions, and combination of this with the benzimidoyl chloride methodol. has enabled the synthesis of variously substituted 2,3,5,6-tetraaryl-DPPs.

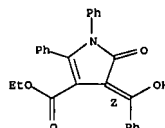
ACCESSION NUMBER: 2005:1163985 HCAPLUS
DOCUMENT NUMBER: 144:69755
TITLE: Synthetic studies related to diketopyrrolopyrrole (DPP) pigments. Part 3: Syntheses of tri- and tetra-aryl DPPs
AUTHOR(S): Riggs, Richard L.; Morton, Colin J. H.; Slawin, Alexandra M. Z.; Smith, David M.; Westwood, Nicholas J.; Austen, William S. D.; Stuart, Katie E.
CORPORATE SOURCE: University of St. Andrews, School of Chemistry, St. Andrews, KY16 9ST, UK
SOURCE: Tetrahedron (2005), 61(47), 11230-11243
CODEN: TETRAD; ISSN: 0040-4020
PUBLISHER: Elsevier B.V.
DOCUMENT TYPE: Journal
LANGUAGE: English
OTHER SOURCE(S): CASREACT 144:69755
IT 128318-56-9P 871667-87-7P
RL: RCT (Reactant); SPN (Synthetic preparation); PREP (Preparation); RACT (Reactant or reagent)
(preparation and fluorescence of tetraarylpyrrolopyrroledione via condensation of diphenylpyrrolinonecarboxylate with benzoyl chloride followed by cyclization and amidation with anilines)
RN 128318-56-9 HCAPLUS
CN 1H-Puro[3,4-c]pyrrole-1,4(5H)-dione, 3,5,6-triphenyl- (9CI) (CA INDEX NAME)

L8 ANSWER 1 OF 4 HCAPLUS COPYRIGHT 2007 ACS on STN (Continued)



RN 871667-87-7 HCAPLUS
CN 1H-Pyrrole-3-carboxylic acid, 4,5-dihydro-4-(hydroxyphenylmethylene)-5-oxo-1,2-diphenyl-, ethyl ester, (4Z)- (9CI) (CA INDEX NAME)

Double bond geometry as shown.



REFERENCE COUNT: 27 THERE ARE 27 CITED REFERENCES AVAILABLE FOR THIS
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L8 ANSWER 2 OF 4 HCAPLUS COPYRIGHT 2007 ACS on STN
ED Entered STN: 21 Jan 2005
GI

* STRUCTURE DIAGRAM TOO LARGE FOR DISPLAY - AVAILABLE VIA OFFLINE PRINT *

AB The invention relates to a process for the preparation of furopyrrroles I, comprising (a) heating a compound II under microwave irradiation, optionally in the presence of an inert solvent (wherein A1 and A2 are C1-C18 alkyl, C2-C18 alkenyl, C2-C18 alkynyl, C5-C8 cycloalkyl, C5-C8 cycloalkenyl, aryl, or heteroaryl; A3 is H, C1-C18 alkyl, cyanomethyl, Ar3, -CH2OR31, (CH2)m-Ar3, or -Y-R32, wherein R30 and R31 independently stand for H or C1-C4 alkyl, or Ph which can be substituted up to three times with C1-C4 alkyl; Ar3 is aryl, C5-C8 cycloalkyl, C5-C8 cycloalkenyl, or heteroaryl, which can be substituted one to three times with C1-C8 alkyl, C1-C8 alkoxy, halogen, or Ph, which can be substituted with C1-C8 alkyl or C1-C8 alkoxy 1-3 times; m is 0, 1, 2, 3, or 4; R is C1-C18 alkyl, in particular C1-C4 alkyl, aryl, in particular Ph, or aralkyl, in particular benzyl, which can be substituted one to three times with C1-C8 alkyl, C1-C8 alkoxy, or halogen; Y is C(O), C(O)O, C(O)NH, SO2NH, or SO2; and is C1-C18 alkyl, Ar3, or aralkyl). Claims also cover diketopyrrolopyrroles (DPPs) III [A4 = H], the preparation of III [A4 = alkyl or Ar3] by reaction of I with primary amines A4-NH2, and an addnl. preparation of III [A4 = H]. I can be obtained in high yield and high purity. The microwave-assisted process, optionally in the presence of an inert solvent, is rapid and economical. Previously, WO03022848 disclosed a process for the preparation of I, comprising heating a compound II in an inert solvent, such as aromatic solvents, like biphenyl, para-, meta- or ortho-terphenyl, dibenzyltoluene, α -methyl- or β -methylnaphthalene, cyclic carbonates like 1,3-dioxolan-2-one, ketones like acetophenone or benzophenone, γ -butyrolactone, and ethylene glycols like Phe-Cellosolve or Bu-Cellosolve, or mixts. thereof, in particular mixts. of di- and triaryl ethers (Dowtherm A). It was discovered that I can be obtained in higher yield by carrying out the above reaction under microwave radiation. The yield of the desired ring closure reaction, e.g., of Et 4-benzoyl-4,5-dihydro-5-oxo-2-phenylpyrrole-3-carboxylate (IV) to give 3,6-diphenylfuro[3,4-c]pyrrole-1,4-dione (V), is, for example, increased from 40% to 86% by microwave assistance. Moreover, the preparation of the latter lactone (a versatile DPP precursor) requires less time (1-10 min) under microwave irradiation, whereas it takes 60 h when conducted without microwave radiation (conventional method). In addition, the solvent can be omitted in the microwave-assisted ring closure, which makes the process even more cost-effective. For instance, 0.296 mmol IV was irradiated with microwave radiation at 2-45 GHz and forward power 300 W without solvent.

L8 ANSWER 2 OF 4 HCAPLUS COPYRIGHT 2007 ACS on STN (Continued)
heating to 250° for 10 min. The crude product V was allowed to cool, triturated, filtered, and washed with MeOH (86% yield). The DPP compd. VI was prepd. in 52% yield by condensation of the corresponding lactone (i.e., an analog of V) with PhNH2 in the presence of CF3CO2H and DCC at room temp. Finally, 5-oxo-4,5-dihydrofuran-3-carboxylates react with primary amines to give corresponding pyrrole derivs., which then react with nitriles A2-CN to give compds. III [A4 = H].

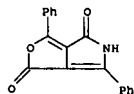
ACCESSION NUMBER: 2005:58206 HCAPLUS
DOCUMENT NUMBER: 142:155935
TITLE: Processes for the preparation of furopyrrroles and diketopyrrolopyrroles (DPPs) via microwave-assisted cyclocondensations of acylpyrrolecarboxylate derivatives, intramolecularly or with nitriles
INVENTOR(S): Smith, David MacDonald; Morton, Colin
PATENT ASSIGNER(S): Ciba Specialty Chemicals Holding Inc., Switz.
SOURCE: PCT Int. Appl., 33 pp.
CODEN: PIXXD2
DOCUMENT TYPE: Patent
LANGUAGE: English
FAMILY ACC. NUM. COUNT: 1
PATENT INFORMATION:

PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
WO 2005005430	A2	20050120	WO 2004-EP51259	20040628
WO 2005005430	A3	20050616		
W: AR, AQ, AL, AM, AT, AU, AZ, BA, BB, BG, BR, BW, BY, BZ, CA, CH, CN, CO, CR, CU, CZ, DE, DK, DM, DZ, EC, EE, EG, ES, FI, GB, GD, GE, GH, GM, HR, HU, ID, IL, IN, IS, JP, KE, KG, KP, KR, KZ, LC, LK, LR, LS, LT, LU, LV, MA, MD, MG, MK, MN, MW, MX, MY, NA, NI, NO, NZ, OM, PG, PH, PL, PT, RO, RU, SC, SD, SE, SG, SK, SL, SV, TJ, TM, TN, TR, TT, TZ, UA, UG, US, UZ, VC, VN, YU, ZA, ZM, ZW				
RM: BW, GH, GM, KE, LS, MM, MR, NA, SD, SL, SZ, TZ, UG, ZM, ZW, AM, AZ, BY, KG, KZ, MD, RU, TJ, TM, AT, BE, BG, CH, CY, CZ, DE, DK, EE, ES, FI, FR, GB, GR, HU, IE, IT, LU, MC, NL, PL, PT, RO, SE, SI, SK, TR, BF, BJ, CP, CG, CI, CM, GA, GN, GQ, GW, ML, MR, NE, SN, TD, TG				
AU 2004255863	A1	20050120	AU 2004-255863	20040628
EP 1641802	A2	20060405	EP 2004-766084	20040628
R: AT, BE, CH, DE, DK, ES, FR, GB, GR, IT, LI, LU, NL, SE, MC, PT, IS, SI, FI, RO, CY, TR, BG, CZ, EE, HU, PL, SK				
CN 1816553	A	20060809	CN 2004-80019155	20040628
US 2007100135	A1	20070503	US 2005-561393	20051219
IN 2006CN00451	A	20070817	IN 2006-CN451	20060203
PRIORITY APPLN. INFO.:			EP 2003-405507	A 20030707
			WO 2004-EP51259	W 20040628

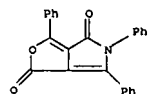
OTHER SOURCE(S): CASREACT 142:155935; MARPAT 142:155935
IT 502183-99-5P, 3,6-Diphenylfuro[3,4-c]pyrrole-1,4-dione
RL: IMP (Industrial manufacture); SPN (Synthetic preparation); PREP (Preparation)
(final compound; preparation of furopyrrroles and diketopyrrolopyrroles (DPPs) via microwave-assisted cyclocondensations of acylpyrrolecarboxylate deriva.)
RN 502183-99-5 HCAPLUS

31/08/2007,10561393b.trn

L8 ANSWER 2 OF 4 HCAPLUS COPYRIGHT 2007 ACS on STN (Continued)
CN 1H-Puro[3,4-c]pyrrole-1,4(5H)-dione, 3,6-diphenyl- (9CI) (CA INDEX NAME)

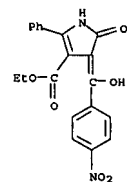


IT 128318-56-9P, 3,5,6-Triphenyl-1H-furo[3,4-c]pyrrole-1,4(5H)-dione
827606-75-7P 827606-77-9P, 3-(p-Bromophenyl)-6-phenylfuro[3,4-c]pyrrole-1,4-dione 827606-79-1P, 5-Methyl-3-(p-bromophenyl)-6-phenylfuro[3,4-c]pyrrole-1,4-dione 827606-83-7P 827606-85-9P, 3-(p-Nitrophenyl)-6-phenylfuro[3,4-c]pyrrole-1,4-dione 827606-87-1P, 5-Methyl-3-(p-nitrophenyl)-6-phenylfuro[3,4-c]pyrrole-1,4-dione 827606-93-9P
RL: IMP (Industrial manufacture); RCT (Reactant); SPN (Synthetic preparation); PREP (Preparation); RACT (Reactant or reagent) (intermediate, preparation of fuopyrroles and diketopyrrolopyrroles (DPPs) via microwave-assisted cyclocondensations of acylpyrrolecarboxylate derivs.)
RN 128318-56-9 HCAPLUS
CN 1H-Puro[3,4-c]pyrrole-1,4(5H)-dione, 3,5,6-triphenyl- (9CI) (CA INDEX NAME)

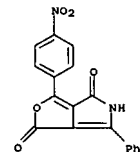


RN 827606-75-7 HCAPLUS
CN 1H-Pyrrole-3-carboxylic acid, 4-[(4-bromophenyl)hydroxymethylene]-4,5-dihydro-5-oxo-2-phenyl-, ethyl ester (9CI) (CA INDEX NAME)

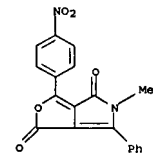
L8 ANSWER 2 OF 4 HCAPLUS COPYRIGHT 2007 ACS on STN (Continued)



RN 827606-85-9 HCAPLUS
CN 1H-Puro[3,4-c]pyrrole-1,4(5H)-dione, 3-(4-nitrophenyl)-6-phenyl- (9CI) (CA INDEX NAME)

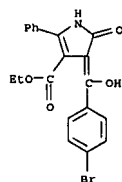


RN 827606-87-1 HCAPLUS
CN 1H-Puro[3,4-c]pyrrole-1,4(5H)-dione, 5-methyl-3-(4-nitrophenyl)-6-phenyl- (9CI) (CA INDEX NAME)

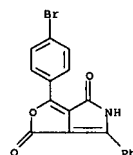


RN 827606-93-9 HCAPLUS
CN 1H-Pyrrole-3-carboxylic acid, 4,5-dihydro-4-(hydroxyphenylmethylene)-5-oxo-1,2-diphenyl-, ethyl ester (9CI) (CA INDEX NAME)

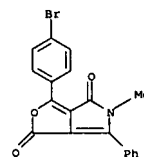
L8 ANSWER 2 OF 4 HCAPLUS COPYRIGHT 2007 ACS on STN (Continued)



RN 827606-77-9 HCAPLUS
CN 1H-Puro[3,4-c]pyrrole-1,4(5H)-dione, 3-(4-bromophenyl)-6-phenyl- (9CI) (CA INDEX NAME)

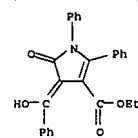


RN 827606-79-1 HCAPLUS
CN 1H-Puro[3,4-c]pyrrole-1,4(5H)-dione, 3-(4-bromophenyl)-5-methyl-6-phenyl- (9CI) (CA INDEX NAME)

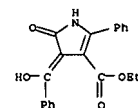


RN 827606-83-7 HCAPLUS
CN 1H-Pyrrole-3-carboxylic acid, 4,5-dihydro-4-[hydroxy(4-nitrophenyl)methylene]-5-oxo-2-phenyl-, ethyl ester (9CI) (CA INDEX NAME)

L8 ANSWER 2 OF 4 HCAPLUS COPYRIGHT 2007 ACS on STN (Continued)

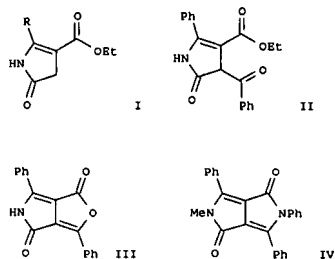


IT 502423-26-9
RL: RCT (Reactant); RACT (Reactant or reagent) (starting material; preparation of fuopyrroles and diketopyrrolopyrroles (DPPs) via microwave-assisted cyclocondensations of acylpyrrolecarboxylate derivs.)
RN 502423-26-9 HCAPLUS
CN 1H-Pyrrole-3-carboxylic acid, 4,5-dihydro-4-(hydroxyphenylmethylene)-5-oxo-2-phenyl-, ethyl ester (9CI) (CA INDEX NAME)



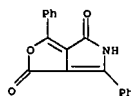
31/08/2007,10561393b.trn

L8 ANSWER 3 OF 4 HCAPLUS COPYRIGHT 2007 ACS on STN
ED Entered STN: 14 Dec 2004
GI

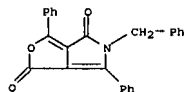


AB Et 2-aryl-4,5-dihydro-5-oxopyrrole-3-carboxylates, I (R = Ph, 4-ClC₆H₄) react with esters or acyl halides in the presence of a strong base to give 4-acyl derivs., e.g. II, which exist predominantly as either E- or Z-enols. These are cyclized, either in solution at temps. >200°C or by microwave irradiation, to 3,6-disubstituted 1H-furo[3,4-c]pyrrolediones, e.g. III, which, after N-protection, are convertible by reaction with primary amines into novel N,N'-disubstituted DPP derivs., e.g. IV.
ACCESSION NUMBER: 2004:1068649 HCAPLUS
DOCUMENT NUMBER: 142:197924
TITLE: Synthetic studies related to diketopyrrolopyrrole (DPP) pigments. Part 2: The use of esters in place of nitriles in standard DPP syntheses; Claisen-type acylations and furopyrrole intermediates
AUTHOR(S): Morton, Colin J. H.; Riggs, Richard L.; Smith, David M.; Westwood, Nicholas J.; Lightfoot, Philip; Slawin, Alexandra M. Z.
CORPORATE SOURCE: School of Chemistry, University of St. Andrews, Fife, KY16 9ST, UK
SOURCE: Tetrahedron (2005), 61(3), 727-738
CODEN: TETRAH; ISSN: 0040-4020
PUBLISHER: Elsevier B.V.
DOCUMENT TYPE: Journal
LANGUAGE: English
OTHER SOURCE(S): CASREACT 142:197924
IT 502183-99-5P 502423-27-0P 502423-30-5P 827606-77-9P 827606-79-1P 827606-85-9P

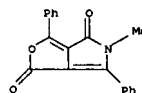
L8 ANSWER 3 OF 4 HCAPLUS COPYRIGHT 2007 ACS on STN (Continued)
827606-87-1P 836624-07-8P 836624-10-3P
RL: RCT (Reactant); SPN (Synthetic preparation); PREP (Preparation); RACT (Reactant or reagent)
(synthesis of diarylpyrrolopyrrolediones via Claisen-type acylations using esters)
RN 502183-99-5 HCAPLUS
CN 1H-Furo[3,4-c]pyrrole-1,4(5H)-dione, 3,6-diphenyl- (9CI) (CA INDEX NAME)



RN 502423-27-0 HCAPLUS
CN 1H-Furo[3,4-c]pyrrole-1,4(5H)-dione, 3,6-diphenyl-5-(phenylmethyl)- (9CI) (CA INDEX NAME)

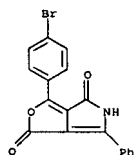


RN 502423-30-5 HCAPLUS
CN 1H-Furo[3,4-c]pyrrole-1,4(5H)-dione, 5-methyl-3,6-diphenyl- (9CI) (CA INDEX NAME)

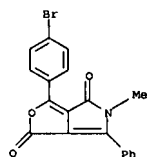


RN 827606-77-9 HCAPLUS
CN 1H-Furo[3,4-c]pyrrole-1,4(5H)-dione, 3-(4-bromophenyl)-6-phenyl- (9CI) (CA INDEX NAME)

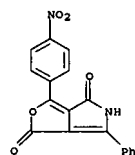
L8 ANSWER 3 OF 4 HCAPLUS COPYRIGHT 2007 ACS on STN (Continued)



RN 827606-79-1 HCAPLUS
CN 1H-Furo[3,4-c]pyrrole-1,4(5H)-dione, 3-(4-bromophenyl)-5-methyl-6-phenyl- (9CI) (CA INDEX NAME)

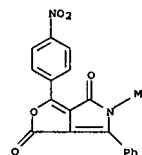


RN 827606-85-9 HCAPLUS
CN 1H-Furo[3,4-c]pyrrole-1,4(5H)-dione, 3-(4-nitrophenyl)-6-phenyl- (9CI) (CA INDEX NAME)



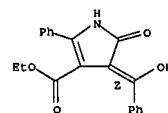
RN 827606-87-1 HCAPLUS
CN 1H-Furo[3,4-c]pyrrole-1,4(5H)-dione, 5-methyl-3-(4-nitrophenyl)-6-phenyl- (9CI) (CA INDEX NAME)

L8 ANSWER 3 OF 4 HCAPLUS COPYRIGHT 2007 ACS on STN (Continued)



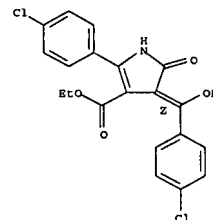
RN 836624-07-8 HCAPLUS
CN 1H-Pyrrole-3-carboxylic acid, 4,5-dihydro-4-(hydroxyphenylmethylene)-5-oxo-2-phenyl-, ethyl ester, (4Z)- (9CI) (CA INDEX NAME)

Double bond geometry as shown.



RN 836624-10-3 HCAPLUS
CN 1H-Pyrrole-3-carboxylic acid, 2-(4-chlorophenyl)-4-[(4-chlorophenyl)hydroxymethylene]-4,5-dihydro-5-oxo-, ethyl ester, (4Z)- (9CI) (CA INDEX NAME)

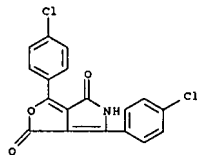
Double bond geometry as shown.



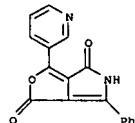
IT 502423-29-2P 836624-14-7P
RL: SPN (Synthetic preparation); PREP (Preparation)
(synthesis of diarylpyrrolopyrrolediones via Claisen-type acylations)

31/08/2007,10561393b.trn

L8 ANSWER 3 OF 4 HCAPLUS COPYRIGHT 2007 ACS on STN (Continued)
 using esters)
 RN 502423-29-2 HCAPLUS
 CN 1H-Puro[3,4-c]pyrrole-1,4(5H)-dione, 3,6-bis(4-chlorophenyl)- (9CI) (CA INDEX NAME)



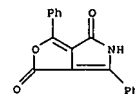
RN 836624-14-7 HCAPLUS
 CN 1H-Puro[3,4-c]pyrrole-1,4(5H)-dione, 6-phenyl-3-(3-pyridinyl)- (9CI) (CA INDEX NAME)



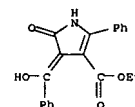
REFERENCE COUNT: 13 THERE ARE 13 CITED REFERENCES AVAILABLE FOR
 THIS RECORD. ALL CITATIONS AVAILABLE IN THE RE
 FORMAT

L8 ANSWER 4 OF 4 HCAPLUS COPYRIGHT 2007 ACS on STN (Continued)
 IE, SI, LT, LV, FI, RO, MK, CY, AL, TR, BG, CZ, ER, SK
 CN 1553912 A 20041208 CN 2002-817586 20020903
 CN 1553913 A 20041208 CN 2002-817793 20020903
 JP 200508903 T 20050407 JP 2003-526923 20020903
 AT 321049 T 20060415 AT 2002-774550 20020903
 AT 357446 T 20070415 AT 2002-779291 20020903
 US 2004171847 A1 20040902 US 2004-485840 20040204
 ZA 2004001106 A 20041019 ZA 2004-1106 20040211
 PRIORITY APPLN. INFO.: EP 2001-810875 A 20010911
 EP 2001-811249 A 20011220
 EP 2002-405223 A 20020322
 WO 2002-EP9792 W 20020903

OTHER SOURCE(S): MARPAT 138:255221
 IT 502183-99-5P 502423-26-9P 502423-27-0P
 502423-28-1P 502423-29-2P 502423-30-5P
 502423-31-6P
 RL: RCT (Reactant); SPN (Synthetic preparation); PREP (Preparation);
 RACT (Reactant or reagent)
 (process for the preparation of diketopyrrolopyrroles (DPPs) from
 furopyrrones and primary amines)
 RN 502183-99-5 HCAPLUS
 CN 1H-Puro[3,4-c]pyrrole-1,4(5H)-dione, 3,6-diphenyl- (9CI) (CA INDEX NAME)

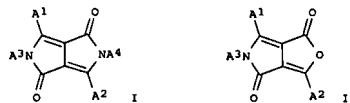


RN 502423-26-9 HCAPLUS
 CN 1H-Pyrrole-3-carboxylic acid,
 4,5-dihydro-4-(hydroxyphenylmethylene)-5-oxo-
 2-phenyl-, ethyl ester (9CI) (CA INDEX NAME)



RN 502423-27-0 HCAPLUS
 CN 1H-Puro[3,4-c]pyrrole-1,4(5H)-dione, 3,6-diphenyl-5-(phenylmethyl)- (9CI) (CA INDEX NAME)

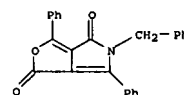
L8 ANSWER 4 OF 4 HCAPLUS COPYRIGHT 2007 ACS on STN
 ED Entered STN: 21 Mar 2003
 GI



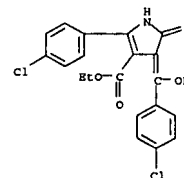
AB Title compds. I; A1, A2 = alkyl, alkenyl, alkynyl, cycloalkyl, cycloalkenyl, aryl, heteroaryl; A3 = H, alkyl, cyanoethyl, Ar3, CR3OR31(CH2)Ar3, YR32, R30, R31 = H, alkyl, (substituted) Ph; Ar3 = (substituted) aryl, cycloalkyl, cycloalkenyl, heteroaryl; Y = CO, CONH, SO2NH, SO2; R32 = alkyl, Ar3, aralkyl; A4 = alkyl, Ar3]. were prepared by treatment of furopyrrones (II; variables as above) with A4NH2 (A4 as above). Thus, II (A1, A2 = Ph; A3 = CH2Ph) was stirred with DCC, PhNH2, and CF3CO2H in CH2Cl2 at 40° to give 16% I (A1, A2, A4 = Ph; A3 = CH2Ph).

ACCESSION NUMBER: 2003:221689 HCAPLUS
 DOCUMENT NUMBER: 138:255221
 TITLE: Process for the preparation of diketopyrrolopyrroles (DPPs) from furopyrrones and primary amines.
 INVENTOR(S): Morton, Colin; Smith, David MacDonald; Ruffieux, Vincent
 PATENT ASSIGNEE(S): Ciba Specialty Chemicals Holding Inc., Swiss.
 SOURCE: PCT Int. Appl., 45 pp.
 CODEN: PIXXD2
 DOCUMENT TYPE: Patent
 LANGUAGE: English
 FAMILY ACC. NUM. COUNT: 2
 PATENT INFORMATION:

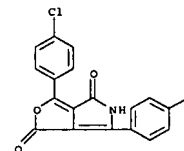
PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
WO 2003022848	A2	20030320	WO 2002-EP9792	20020903
WO 2003022848	A3	20030918		
W:	AE, AG, AL, AM, AT, AU, AZ, BA, BB, BG, BR, BY, BZ, CA, CH, CN, CO, CR, CU, CZ, DE, DK, DM, DS, EC, EE, ES, FI, GB, GD, GE, GH, GM, HR, HU, ID, IL, IN, IS, JP, KE, KG, KP, KR, KZ, LC, LK, LR, LS, LT, LU, LV, MA, MD, MG, MK, MN, MW, MX, MZ, NO, NZ, OM, PH, PL, PT, RO, RU, SD, SE, SG, SI, SK, SL, TJ, TM, TN, TR, TT, TZ, UA, UG, US, UZ, VC, VN, YU, ZA, ZM, ZW			
RM:	GH, GM, KE, LS, MW, MZ, SD, SL, SZ, TZ, UG, ZM, ZW, AM, AZ, BY, KG, KZ, MD, RU, TJ, TM, AT, BE, BG, CH, CY, CZ, DE, DK, EE, ES, FI, FR, GB, GR, IE, IT, LU, MC, NL, PT, SE, SK, TR, BF, BJ, CF, CG, CI, CM, GA, GN, GW, ML, MR, NE, SN, TD, TG			
AU 2002342633	A1	20030324	AU 2002-342633	20020903
EP 1425282	A2	20040609	EP 2002-779291	20020903
EP 1425282	B1	20070321		
R:	AT, BE, CH, DE, DK, ES, FR, GB, GR, IT, LI, LU, NL, SE, MC, PT,			



RN 502423-28-1 HCAPLUS
 CN 1H-Pyrrole-3-carboxylic acid, 2-(4-chlorophenyl)-4-[(4-chlorophenyl)hydroxymethylene]-4,5-dihydro-5-oxo-, ethyl ester (9CI) (CA INDEX NAME)



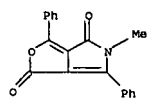
RN 502423-29-2 HCAPLUS
 CN 1H-Puro[3,4-c]pyrrole-1,4(5H)-dione, 3,6-bis(4-chlorophenyl)- (9CI) (CA INDEX NAME)



RN 502423-30-5 HCAPLUS
 CN 1H-Puro[3,4-c]pyrrole-1,4(5H)-dione, 5-methyl-3,6-diphenyl- (9CI) (CA INDEX NAME)

31/08/2007,10561393b.trn

L8 ANSWER 4 OF 4 HCAPLUS COPYRIGHT 2007 ACS on STN (Continued)



RN 502423-31-6 HCAPLUS
CN 1H-Puro[3,4-c]pyrrole-5(4H)-carboxylic acid, 1,4-dioxo-3,6-diphenyl-,
1,1-dimethylethyl ester (9CI) (CA INDEX NAME)

